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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/402,968	01/12/2000	JOHN PAUL RONALDSON	UD&LP035	6691
22434	7590	02/08/2006	EXAMINER	
BEYER WEAVER & THOMAS LLP			JONES, HUGH M	
P.O. BOX 70250			ART UNIT	
OAKLAND, CA 94612-0250			PAPER NUMBER	
			2128	

DATE MAILED: 02/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Notice of Allowability

Application No.

09/402,968

Examiner

Hugh Jones

Applicant(s)

RONALDSON ET AL.

Art Unit

2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 11/25/2005.
2. ☒ The allowed claim(s) is/are 1-17, 19-25 and 27-32.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

DETAILED ACTION

1. Claims 1-17, 19-25, 27-32 of U. S. Application 09/402,968, filed 01/12/2000 are presented for examination.

2. This is a supplemental notice of allowance.

- Item "J" of the Information Disclosure Statement of 6/5/2000 has been reviewed.
- Pages 17-18 of the specification contain ineligible material. Attempts were made, unsuccessfully, to contact Applicants to correct the deficiency.

Therefore, an Examiner's amendment is provided in this action.

Examiner's Amendment

3. An examiner's amendment to the record appears below. Attempts were made, unsuccessfully, to contact Applicants to correct the deficiency. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

4. The application has been amended as follows:

- Insert corrections to page 17, as indicated on attached sheet # 1.
- Insert corrections to the table on page 18, as indicated on the attached sheet # 2.

Allowable Subject Matter

5. Claims 1-17, 19-25, 27-32 are allowed over the prior art of record. Reasons for allowance were presented in the office action of 9/23/2005.

6. **Any inquiry concerning this communication or earlier communications from the examiner should be:**

directed to: Dr. Hugh Jones telephone number (571) 272-3781,

Monday-Thursday 0830 to 0700 ET,

or

the examiner's supervisor, Kamini Shah, telephone number (571) 272-2279.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist, telephone number (703) 305-3900.

mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 308-9051 (for formal communications intended for entry)

or (703) 308-1396 (for informal or draft communications, please label *PROPOSED* or *DRAFT*).

Dr. Hugh Jones
Primary Patent Examiner
January 30, 2006

HUGH JONES Ph.D.
PRIMARY PATENT EXAMINER
TECHNOLOGY CENTER 2100

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compared with the previous solution, SOLUTION A, and the actual. If the previous solution, SOLUTION A, was a better fit then the new solution, SOLUTION B, is tried at the halfway point of the variation vector, SOLUTION B0.5.

If SOLUTION B0.5 is a better than SOLUTION A then the vector determination process is repeated on this solution to give SOLUTION C. The process is then repeated until a solution close enough to the actual values is obtained.

If SOLUTION B0.5 is worse than the comparison between the actual values and SOLUTION A then the new trial is made only a quarter of the way along the vector to give SOLUTION B0.25. This process is continued until a better B solution than the A solution is obtained.

As an alternative the analysis may determine the minimum chi along the vector determined from the gradients of the various variables, a line minimisation routine, rather than a series of discrete tries.

The overall aim is to minimise the χ^2 value,
 $\chi^2 = \sum_{\text{all modules}} \frac{(\text{predicted} - \text{measured})^2}{(\text{error})^2}$, for the detectors.

The experimental test results obtained as the determined solution to the actual source 1 illustrated in Figure 3 are provided below. The initial estimate applied as the trial solution was $x=1\text{cm}$, $y=2\text{cm}$, activity= 5×10^5 nps and the iterative process took the model solution from this point to the listed solution.

attachment
#2

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Detector module locations:						
	36	38	40	34	32	30
x	25	75	125	125	75	25
y	-7	-7	-7	127	127	127
	cm					

Trial solution:		True source location and activity:	
x	24.35 cm	x	25 ± 5 cm
y	28.56 cm	y	30 ± 5 cm
activity	5.09 × 10 ⁵ nps	activity	4.95 × 10 ⁵ nps

Distance (r) and angle (θ) from source to detectors:						
	#1	#2	#3	#4	#5	#6
r	35.57	61.89	106.75	140.79	110.71	98.44
θ	1.05	54.93	70.54	45.64	27.23	0.38
	cm					
	degrees					

Predicted channel count rates:						
	#1	#2	#3	#4	#5	#6
	4651.7	2117.6	1013.1	689.7	1111.0	1223.6
	nps					

Observed channel count rates:						
	#1	#2	#3	#4	#5	#6
	4652.4	2117.6	990.2	663.5	1161.6	1202.0
	nps					

Square of differences:						
	#1	#2	#3	#4	#5	#6
	0.5	15.7	524.0	685.0	2558.7	467.9
	sum = 42510.2					

4652.4

2117.6

4.25 x 10³

Clearly the results obtained represent an accurate proposal for the solution with the prediction being made with a reasonable degree of precision.

Further actual examples for the 15 source locations provided in Figure 3 are shown below. The deviations from the actual values present relate to no more than plus or minus 5cm, a high degree of accuracy in indicating the position of the source.